DETAILED ACTION

1. This Office action is in response to Applicant's RCE and amendment filed January 27, 2010. Claim 13 has been amended.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 11-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn (US 2002/0011925) in view of Kinoshita et al. (US Patent No. 5,642,093).

As to claim 11, Hahn discloses a system, thus also method for warning a driver of a motor vehicle, comprising

detecting an object (e.g. a pedestrian, automobile 301, 302, 303, etc…see fig. 4) (note that Hahn's system must detect an object so that the system knows where the object is in order to provide symbols to the location where the object would appear on the windshield of the vehicle);

generating, in a direction of at least one object in a field of view of the driver, at least one optical warning (image or symbol) by at least one signaling arrangement (paras. [0016] and [0017]);

the at least one object (e.g. pedestrian, see para. 0019) being situated in vicinity of the motor vehicle. See abstract and figs. 1-4.

The reference fails to literally state that the at least one optical warning is generated at least prior to the at least one object becoming visible to the driver. However, it would have been obvious to one skilled in the art that the Hahn system generates the warning prior to the object becoming visible to the driver because Hahn's system is designed to generate warning to the driver of impending danger as the objective of Hahn's invention is clearly stated in para. [0019]. Furthermore, as stated in para. [0019], the sensors used in Hahn's system are infrared. Infrared sensors sense obstacle in darkness even before danger to the driver can reliably established. Thus, the Hahn system detects and displays the images of the objects, regardless the pedestrian has been visible to the driver or not. For instance, there are instances whereby the object could be black color which can hardly be seen in darkness. In this situation, the object/pedestrian (real not images projected on the windshield) might not yet have been visible to the driver but the infrared sensors detected the object and displayed it on the display as a result of the detection.

Hahn fails to disclose detecting a lane or course of a roadway. However, it would have been obvious to one skilled in the art to readily recognized the desirability of detecting a lane on the road for the purpose of providing a warning to a driver to the position of the vehicle in the lane to prevent off-lane travel as taught in Kinoshita et al. (Kinoshita) (see col. 4, lines 61-66, col. 4, last paragraph) because such warning would enhance the safety warning system of Hahn's especially Hahn's warning system is used to preferably improve night vision.

As to claim 12, in the Hahn system, the at least one optical warning includes at least one of at least one patch of light and at least one warning symbol. See figs. 2-4 and para. [0017].

As to claim 13, in the Hahn system, at least the display duration of the optical warning is changeable. See para. [0010]. Hahn fails to disclose that at least one of a repetition frequency and an intensity of the optical warning is changeable. However, Hahn suggests that the display of the action relevant information in the way that would draw attention of the driver depending on level of potential danger, such as by increasing the duration proportionally with the increase of a potential danger. See para. [0010]. In light of this teaching, it would have been obvious to one skilled in the art to change the repetition frequency

and/or the intensity of the display in Hahn because such change would be as functional equivalent and just as effective as increasing the duration.

As to claim 14, the Hahn reference fails to literally state that the at least one optical warning is generated immediately prior to the at least one object becoming visible to the driver. However, it would have been obvious to one skilled in the art that the Hahn system generates the warning immediately prior to the object becoming visible to the driver because Hahn's system is design to generate warning to the driver of impending danger as the objective of Hahn's invention is clearly stated in para. [0019]. By generating the warning immediately it would allow enough time for the driver to response to the warning.

As to claim 15, the optical warning in Hahn's system is generated as a function of a dangerousness of a driving situation, that is, as the duration of the display increases proportionally with the danger. Para [0010].

As to claim 16, in the Hahn system, the at least one optical warning is at least generated as a function of an optical signal of surroundings of the motor vehicle, the optical signals being generated by at least one image-sensor system including an infrared-sensitive image-sensor system. Para [0030].

As to claim 17, the least one of at least one projection device and at least one head-up display shown in Hahn's serves as the at least one signaling arrangement generates the at least one optical warning. See para. [0030].

As to claim 18, Hahn discloses a device for warning a driver of a motor vehicle, comprising:

a processing module arrangement having a module for detecting at least one object (e.g. a pedestrian, automobile 301, 302, 303, etc…see fig. 4) (note that Hahn's system must detect an object so that the system knows where the object is to provide symbols to the location where the object would appear on the windshield of the vehicle); and

at least one signaling arrangement for generating at least one optical warning, the at least one signaling means including an arrangement for generating the at least one optical warning in a direction of at least one object in a field of view of the driver, and the at least one object being situated in a vicinity of the motor vehicle (paras. [0016] and [0017]), wherein the at least one signaling arrangement includes an arrangement for generating the at least one optical warning in the direction of the at least one object in the vicinity of the motor vehicle. See abstract and figs. 1-4 and para. [0030].

The reference fails to literally state that the at least one optical warning is generated at least prior to the at least one object becoming visible to the driver. However, it would have been obvious to one skilled in the art that the Hahn system generates the warning prior to the object becoming visible to the driver because Hahn's system is designed to generate warning to the driver of impending danger as the objective of Hahn's invention is clearly stated in para. [0019]. Furthermore, as stated in para. [0019], the sensors used in Hahn's system are infrared. Infrared sensors sense obstacle in darkness even before danger to the driver can reliably established. Thus, the Hahn system detects and displays the images of the objects, regardless the pedestrian has been visible to the driver or not. For instance, there are instances whereby the object could be black color which can hardly be seen in darkness. In this situation, the object/pedestrian (real not images projected on the windshield) might not yet have been visible to the driver but the infrared sensors detected the object and displayed it on the display as a result of the detection.

Hahn fails to disclose a module for detecting at least one of a lane and a course of a roadway. However, the use of a module for detecting lane markers is well known in the art as taught in Kinoshita wherein CCD cameras are used to detect lane markers and wherein such information is used to warning driver of an off-lane travel situation. Thus, in light of Kinoshita, it would have been obvious to

one skilled in the art to employ this teaching in the Hahn system because it would further enhance the safety warning system disclosed by Hahn. It would have been obvious to one skilled in the art that the module for detecting an object would be separate from the module for detecting a lane because the lane detecting module detects downward at the surface of the road while an object detection module detects objects around the vehicle that may not be on the surface of the road (e.g. a highway traffic entrance gate). It would have also been obvious to one skilled in the art that these two modules work in parallel in the modified Hahn warning system because they would both be used to detect objects to warn vehicle operator of the modified system of Hahn's.

As to claim 19, In the Hahn system, the at least one signaling arrangement includes at least one of:

an arrangement (para. [0030]) for generating at least one of at least one patch of light and at least one warning symbol as the at least one optical warning (see figs. 2-4 and para. [0019]);

an arrangement for changing at least one of a display duration, a size, a color, and an intensity of the at least one optical warning (see para. [0010]);

an arrangement for generating the at least one optical warning as a function of a dangerousness of a driving situation (see para. [0010] wherein it is stated that

the duration of the display increases proportionally with the degree of the impending danger).

As to claim 20, he Hahn system includes at least one infrared-sensitive image-sensor system for generating an optical signal of surroundings of the motor vehicle, wherein the at least one signaling arrangement includes at least one of a projection device and at least one head-up display. See figs. 1-4 and para. [0030].

As to claim 21, Hahn's system is a head-up display system that displays images of vehicle in front of the vehicle (para. [0020]). It is inherent that images of the object that was represented as a warning would become actual object displayed on the heads-up display once visible within the field of view of the driver. Therefore, once that image becomes an object for displayed on the heads-up display, it is distinguished from another optical warning of which is only a symbol to attract the driver's attention.

As to claims 22-28, the rejection of these claims recites what was stated in the rejection of claims 12-18.

As to claims 29-34, the rejection of these claims recites what was stated in the rejection of claims 12-17.

Applicants' Arguments

4. Applicants presented the following arguments:

Applicant pointed to paragraph [0020] of Hahn which states that "action-relevant information is advantageously displayed in the form of light spots which are *superimposed* on the images of the actual objects *in the field of vision of the driver."* Applicants appear to argue that automobiles 201, 202, 203, 301, 302, 303, are real objects already visible to the driver.

Response to Applicants' Arguments

5. Applicant's arguments have been fully considered but they are not persuasive.

The examiner submits that 201, 202, 203, 301, 302, 303, are images of objects which are detected by the sensors and displayed on the heads-up display of Hahn's system. What is already visible to the driver are images of the automobiles that the sensors detected but in reality those automobile may or may not yet be visible to the driver.

For the stated reason, the argument is not deemed persuasive and the rejection is maintained.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julie Lieu whose telephone number is 571-272-2978. The examiner can normally be reached on MaxiFlex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on 571-272-7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Julie Lieu/
Primary Examiner
Art Unit 2612

Apr 8, 10